

SUMMARY OF THE 2012 IEP STUDY SOLICITATION AND REVIEW PROCESS AND FUNDING RECOMMENDATIONS FOR THE 2013 IEP WORK PLAN

PREPARED FOR THE IEP DIRECTORS, STAKEHOLDERS, AND COORDINATORS

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IEP MANAGEMENT, ANALYSIS AND SYNTHESIS TEAM (MAST), AND 2012 IEP PROPOSAL REVIEW TEAM.

1. Overview

- a) **Funding Recommendation:** The 2012 IEP Proposal Review Team highly recommends **24 proposed studies with a total cost of \$2.5M** for funding by Reclamation (\$1.9 M) and DWR (\$0.6 M) as part of the 2013 IEP Work Plan. The review team also highly recommends 4 additional studies (\$0.5M) for future SWRCB or other funding. In addition, the review team notes that ALL 39 proposals were of high quality and relevance and studies based on all proposals, including the lower ranked proposals, could be included in the 2013 IEP Work Plan if more funding became available.
- b) **Study Solicitation and Review Process:** For the 2013 IEP Work Plan, the IEP publicly solicited **study concept proposals** aimed at advancing the understanding of environmental drivers and ecological processes that control the population dynamics and resilience of fishes in the San Francisco Estuary. 93 study concepts requesting a total of \$15.6M in funding and covering all four topic areas were received, reviewed, and ranked by the MAST and MT. **Full proposals** were invited for the 39 most highly ranked study concepts. All 39 full proposals requesting a total of \$5.9M were received by their due date and reviewed and ranked by a 24-person review team consisting of MAST and MT members as well as several IEP Coordinators and their staff, each reviewing at least 3 and in most cases 5 proposals. Stakeholders provided input to the study solicitation, but were not invited to participate in the study concept and full proposal selection process in order to preserve confidentiality and protect the intellectual property of the proposal authors.

Study concepts were publicly solicited via email and the internet. The solicitation included 19 priority study questions in four topic areas:

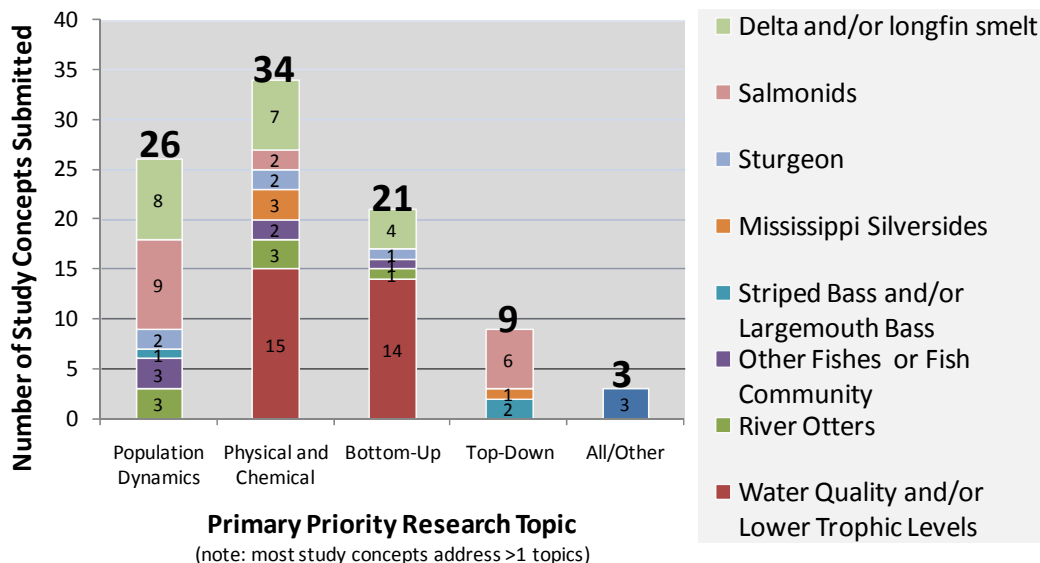
- 1) Fish population dynamics, health, and distribution;
- 2) Physical and chemical habitat effects on fish populations;
- 3) Food web effects on fish populations (bottom-up effects);
- 4) Effects of piscivores or water diversions on fish populations (top-down effects).

A full description of topic areas and list of questions is given in Appendix 1. The topic areas and questions were intended to focus the study concepts on major uncertainties and assure high management relevance. Synthetic studies integrating across topic areas and questions were also explicitly welcomed. The IEP Management, Analysis, and Synthesis Team (MAST) derived an initial set of questions from several conceptual models. This set of questions was refined and expanded based on input solicited from the IEP Coordinators, IEP Project Work Teams, Stakeholders, and the Federal Science Task Force. The MAST also developed guidelines and procedures for reviewing study concepts and full proposals. The solicitation and review guidelines are posted on the IEP website and embedded at the end of this report.

2. Study Concepts

The IEP received 93 study concepts by the due date of July 1, 2012, requesting a total of \$15.6M in funding. Most study concepts addressed more than one of the four priority research topics listed in the call for study concepts, but most commonly addressed topics 1 (population dynamics) and 2 (physical and chemical habitat). 54 study concepts focused strongly on fish, 29 on water quality and/or lower tropic levels, and 10 targeted other organisms or topics (Figure 1).

Figure 1: Study Concept Topics and Targets.



The IEP MAST/MT reviewed and ranked the study concepts using the review criteria described in the call for study concepts and in the IEP review guidelines document. The goal was to recommend to the IEP Coordinators a high-quality set of study concepts for invitation of full proposals representing a balanced mix of topics, investigators, budgets, etc. and a total proposed budget of no more than about twice the available funding.

The review and ranking involved two steps:

1. "Screening" of all study concepts by individual MAST/MT reviewers resulting in "yes (=1)", "no (=3)" and "maybe (=2)" ratings and a ranked list of study concepts;
2. MAST/MT group discussion of study concepts, with special emphasis on concepts with intermediate ratings and/or low agreement among reviewers; group agreement on final "yes" and "no" ratings along with a small remaining intermediate group.

Subsequently, the IEP Coordinators discussed the results of the MAST/MT ratings and approved invitation of 39 full proposals for consideration for the 2013 IEP Work Plan with a submission deadline of August 24. They also approved invitation without a submission deadline of an additional 9 proposals for consideration if more funding should become available in the future.

Table 1: Number of Study Concepts Selected/Not Selected for Full Proposal Invitation with Funding Levels and Review Ratings; In Parentheses: Percent Selected of All Submitted Study Concepts

Invite Full Proposal?	Number of Study Concepts	Total Requested Funding	Average Individual Reviewer Rating (1=High to 3=Low)	Average Number of Reviewers
Yes	39 (42%)	\$6,332,266	1.88	11.3
Yes for Later	9 (10%)	\$2,681,802	2.37	11.4
No	45 (48%)	\$6,621,302	2.72	12.2
All	93	\$15,635,370	2.34	11.8

Table 2: Number of Study Concepts Selected/Not Selected for Full Proposal Invitation by Primary Research Topic Area; In Parentheses: Percent Selected of All Submitted Study Concepts in Each Primary Research Topic Area. Note: most study concepts addressed more than one topic area.

Invite Full Proposal?	Fish Population Dynamics	Physical and Chemical Habitat	Bottom-up (Food Web)	Top-Down (Predation, Diversions)	All or Other Topics	All
Yes	8 (31%)	15 (44%)	11 (52%)	5 (56%)		39
Yes for Later	2 (8%)	4 (12%)	2 (10%)	1 (11%)		9
No	16 (62%)	15 (44%)	8 (38%)	3 (33%)	3 (100%)	45
All	26	34	21	9	3	93

3. Full Proposals

a) Full Proposal Submissions:

All 39 invited full proposals were received by their due date of August 24, requesting a total of \$3.7M without indirect costs and up to \$5.9M with indirect costs, depending on overhead rate. Most proposals addressed more than one of the four priority research topics listed in the call for study concepts, but most commonly addressed topics 2 (physical and chemical habitat) and 3 (bottom-up/food web) (Figure 2). This is similar to, but not exactly the same as the distribution of primary research topics determined for the study concepts that were invited for full proposal submission (Figure 1). 21 full proposals focused strongly on fish (including 7 on delta and/or longfin smelt and 6 on salmonids) and 18 on water quality and/or lower tropic levels. Most proposals came from university scientists followed by Federal and State agency scientists (Table 2).

Figure 2: Full Proposal Topics and Targets.

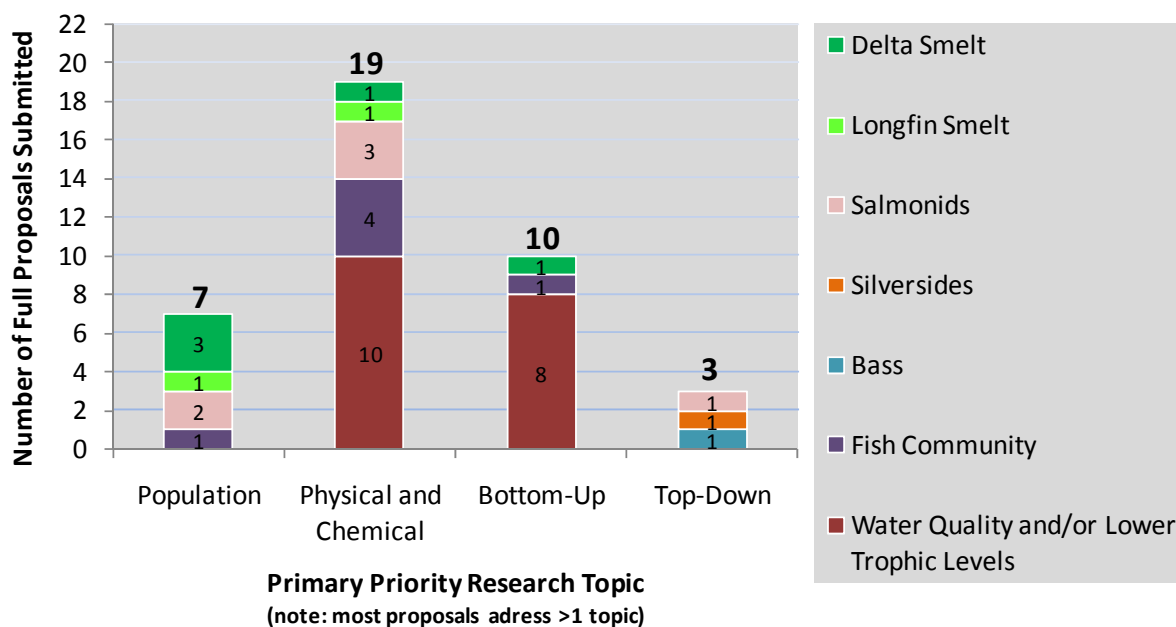


Table 3: Full Proposal P.I. Affiliation and Funding Requested

P.I. Affiliation	Number of Proposals	Requested Funding (Max. OHR)
University	21	\$4,079,172
Federal Agency	10	\$1,248,768
State Agency	4	\$178,928
Private	3	\$256,804
Non-Profit	1	\$181,000
<i>All</i>	39	\$5,944,672

b) Full Proposal Review Goal and Process:

Similar to the study concept review, the goal of the full proposal review was to recommend to the IEP Coordinators a high-quality set of studies for funding as part of the 2013 IEP Workplan representing a balanced mix of topics, investigators, budgets, etc. and a total proposed budget of no more than the available funding. At the time of the proposal review, three agencies had tentatively agreed to provide study funding (\$2M from Reclamation and \$0.5 each from DWR and SWRCB).

The 39 full proposals were reviewed and discussed by a 24-member review team consisting of IEP MT and MAST members, several IEP Coordinators, and additional IEP staff with relevant technical expertise. Review assignments were based on the self assessed qualification of each reviewer, including experience, expertise, and agency affiliation and mission and included reviewer choice and random assignments, with 4 or more reviews per reviewer (5 on average). Reviewers were not allowed to review or otherwise weigh in on proposals of close associates (e.g. collaborator or from

same agency) and proposals that they helped prepare in any way, or for which they had prior knowledge or strong opinions that could affect objectivity.

As with the study concepts, the full proposal review proceeded in two steps:

1. Individual reviews using a detailed, standardized review form with quantitative and qualitative ratings as well as verbal portions to ensure consistency and allow comparisons. Reviews centered on three broad merit review criteria (technical merit, likelihood of success, and added value/relevance), each with a number of specific considerations laid out in the proposal review guidelines posted on the IEP website. Proposal performance related to each of 32 specific considerations was rated as 4=superior, 3=above average, 2=below average, or 1=inadequate. 36 proposals were reviewed by 3 or more reviewers and the remaining 3 proposals were each reviewed by 2 reviewers. Reviews were synthesized into a ranked list prior to step 2.
2. Proposal Review Team group discussion of all full proposals and their reviews. Special emphasis was given to in-depth discussions of proposals with intermediate ratings and/or low agreement among reviewers. The review team also paid special attention to synergy among groups of proposals and funding of all or a subset of proposed tasks.

c) Full Proposal Funding Recommendations:

The two proposal review steps led to a ranked list with recommendations for full and partial (subset of proposed tasks) funding as well as likely funding sources.

Review Recommendations and Ratings: The 2012 IEP Proposal Review Team highly recommends 28 studies for full or partial funding with a total amount of \$3M. 11 studies were not recommended for funding. The 28 studies recommended for funding were on average rated higher by the reviewers than the 11 studies not recommended for funding (Table 4). It is important to note, however, that **ALL 39 proposals were of high quality and relevance** (average rating 3.2 = “above average”) and studies based on all proposals, including the 11 lower ranked proposals, could be included in the 2013 IEP Work Plan if more funding became available.

Table 4: Funding recommendations, Funding Levels, and Numerical Review Ratings for All Proposed Studies

Recommended for Funding?	Number of Proposed Studies	Total Recommended Funding	Total Requested Funding	Average Reviewer Rating (4=High to 1=Low)	Average Number of Reviewers
Yes*	28	\$2,981,164	\$3,758,605	3.29	2.9
No	11		\$2,186,067	2.99	3.0
All	39	\$2,981,164	\$5,944,672	3.20	2.9

* Includes 4 studies recommended for SWRCB funding

Recommended Primary Funding Sources and Additional Funding: The proposal review team recommended fully or partially funding 28 highly ranked proposed studies (72% of all proposed studies). The team further recommended that 17 would be funded by Reclamation, 7 by DWR, and 4 by SWRCB with a total recommended budget of \$3M (50% of total proposed budget; Table 2). Ten of the studies recommended for funding also include additional in-kind contributions by 7 IEP agencies (DWR, DFG, USGS, BOR, FWS, NOAA, EPA). Four of the 24 studies recommended for DWR and Reclamation funding include additional external matching funding by SFCWA (\$200K) and SRCSD (\$50K).

In early October, SWRCB determined that it would not be possible to fund any studies recommended for SWRCB funding at this time. SFCWA and SRCSD would have contributed a total amount of \$103K in matching funds to two of the four studies recommended for SWRCB funding. These matching funds will be lost if no other primary funding source can be found.

Table 5: Recommended Study Funding by Funding Source

Funding Source	Number of Studies	Recommended Funding
Reclamation	17	\$1,935,180
DWR	7	\$572,026
SWRCB	4	\$473,959
All	28	\$2,981,164

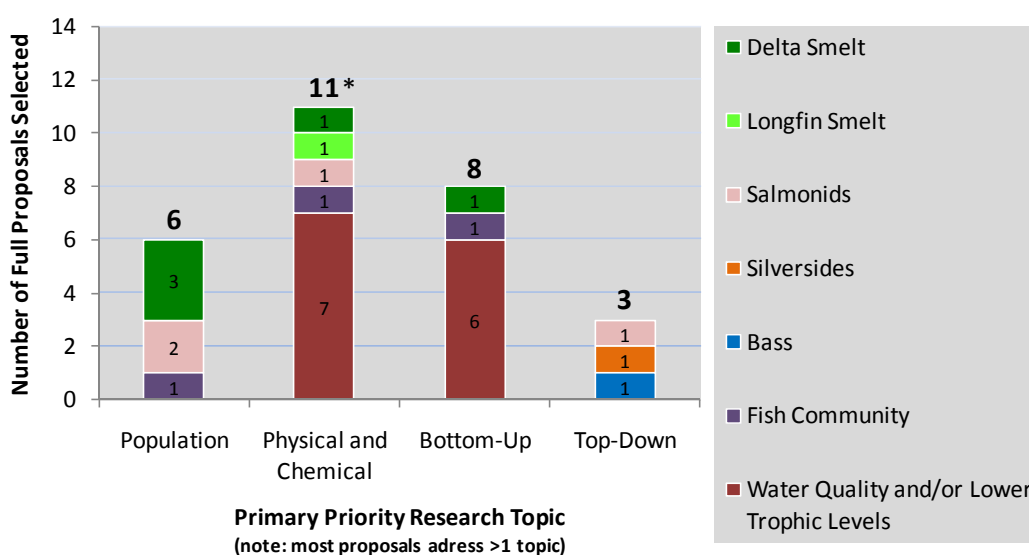
Topics of Studies Recommended for Funding: Similar to the study concepts, most proposals recommended for funding addressed more than one of the four priority research topics listed in the call for study concepts, but most commonly addressed topics 2 (physical and chemical habitat) and 3 (bottom-up/food web) (Table 6). 15 recommended proposals focused strongly on fish (including 6 on delta and/or longfin smelt and 4 on salmonids) and 13 on water quality and/or lower trophic levels (Figure 3).

Table 6: Number of Proposed Studies Recommended/Not Recommended for Funding (including SWRCB Funding) by Primary Research Topic Area; In Parentheses: Percent Selected of All Submitted Proposals in Each Primary Research Topic Area. Note: most study concepts addressed more than one topic area.

Recommended for Funding?	Fish Population Dynamics	Physical and Chemical Habitat	Bottom-Up (Food Web)	Top-Down (Predation)	All
Yes*	6 (86%)	11 (58%)*	8 (80%)	3 (100%)	28
No	1 (14%)	8 (42%)	2 (20%)		11
All	7	19	10	3	39

* Includes 4 water quality studies recommended for SWRCB funding in "Physical and Chemical Habitat"; without these 4 studies there are 7 recommended studies in this topic area (37% of all submitted proposals in this topic area)

Figure 3: Topics and Targets of Studies Recommended for Funding (includes the 4 studies recommended for SWRCB funding, see also note below).



* Includes 4 water quality studies recommended for SWRCB funding in "Physical and Chemical Habitat"

Specific Management Relevance: Reviewers also assessed the relevance of the proposed studies to three specific management priorities: addressing uncertainties in the FWS Smelt Biological Opinion (BiOp) and the NOAA Salmon BiOp and providing data and information for the further development of the new Delta Regional Monitoring Program (Delta RMP) for contaminants. Most of the studies proposed and subsequently recommended for funding were of high to medium-high relevance to the Smelt BiOp, followed by studies of high to medium-high relevance to Delta RMP development and the Salmon BiOp. The exact same percentages (81%) of proposed studies relevant to the smelt and the salmon BiOps were recommended for funding (Table 7).

Table 7: Specific Management Relevance (rated “High” and “Medium”) of Recommended and Proposed Studies.

Management Relevance	Studies Recommended for Funding				Proposed Studies	
	Number of Studies	% of Proposed Studies	Funding	% of Requested Funding	Number of Proposed Studies	Requested Funding
... to Smelt BiOp/FLaSH	21	81%	\$2,540,817	61%	26	\$4,188,495
... to Salmon BiOp	13	81%	\$1,003,145	49%	16	\$2,059,050
... to Delta RMP	18	69%	\$1,927,914	47%	26	\$4,072,742
All Studies*	28	72%	\$2,981,164	50%	39	\$5,944,672

* Includes 4 studies recommended for SWRCB funding

P.I. Affiliation: As mentioned above, most Principal Investigators (P.I.s) proposing studies were affiliated with universities, followed by Federal and State agencies, private companies, and a non-profit. The affiliation of P.I.s of studies recommended for funding follows roughly the same pattern, although proposals from Federal and State agencies were somewhat more successful than P.I.s from universities or private companies (Table 8).

Table 8: Funding Recommendations by P.I. Affiliation (*with 4 studies recommended for SWRCB funding)

Recommended for Funding?*	P.I. Affiliation	Number of Studies	% Yes or No	Total Recommended Funding	Total Requested Funding
Yes	University	14	67%	1,883,037	2,444,361
	Federal Agency	8	80%	540,648	779,103
	State Agency	3	75%	138,152	138,152
	Private	2	67%	238,327	215,989
	Non-Profit	1	100%	181,000	181,000
	All Yes	28		2,981,164	3,758,605
No	University	7	33%		1,634,811
	Federal Agency	2	20%		469,665
	State Agency	1	25%		40,776
	Private	1	33%		40,815
	All No	11			2,186,067
All		39		2,981,164	5,944,672

4. Some Recommendations for Improving IEP Study Concept and Proposal Solicitations and Reviews

The process worked overall, but it really needs more time and/or more people and resources, for example for the following:

- It would be better if technical reviews could be conducted by a separate, independent group of reviewers.
- The role of stakeholders needs to be reconsidered and clarified. Perhaps there should be a step that shares the study concepts or proposal summaries with the Stakeholder Group.

5. Embedded Reference Documents:

- 2012 IEP Call for Study Concepts



IEP Study Concept
Call_6-5-2012 (1) (2).

- 2012 Review Process and Criteria for Study Concepts and Full Proposals



IEP Study Concept
and Proposal Review

Appendix 1: Study Topics and Questions: Excerpt from 2012 Call for Study Concepts

Topic 1: Fish population dynamics, health, and distribution.

Background:

The IEP has long monitored fish abundance and distribution in the San Francisco estuary, but uncertainties remain about reproduction, growth, survival, and health of many fish species of interest in the estuary as well as about their distribution in less intensely monitored regions of the estuary such as shallow water areas and the Cache Slough complex in the Northern Delta. Fish species of particular interest include the native delta smelt (*Hypomesus transpacificus*), longfin smelt (*Spirinchus thaleichthys*), Chinook salmon (*Oncorhynchus tshawytscha*) and steelhead (*Oncorhynchus mykiss*), and the introduced striped bass (*Morone saxatilis*), largemouth bass (*Micropterus salmoides*), threadfin shad (*Dorosoma petenense*), and Mississippi silverside (*Menidia beryllina*).

Specific questions to address:

- A. How can existing or new monitoring, modeling, or other methods be applied to better characterize fish population dynamics, health, and distribution in the estuary?
- B. How does survival of salmonids vary between the north and south Delta and under different hydrological conditions?
- C. How do salmonids use the Cache Slough complex?
- D. What is the status and distribution of wild steelhead populations in the estuary?

Topic 2: Physical and chemical habitat effects on fish populations.

Background:

The physical and chemical habitat quantity and quality experienced by native and non-native fishes, their predators, and their food resources is characterized by interacting dynamic and stationary (geographically fixed) abiotic habitat components. The focus here is on gaining a better understanding of how interactions of stationary abiotic habitat components such as bathymetry, sediment supply, and contaminant sources with dynamic abiotic habitat components such as flows, salinity, turbidity, temperature, and contaminant concentrations affect life stages of fish species of interest (see Topic 1) in different seasons and regions of the estuary.

Specific questions to address:

- A. How can existing or new monitoring, modeling, or other methods be applied to better define, monitor, and assess fish habitat in the estuary?
- B. What, if any, is the relationship between turbidity and/or other dynamic habitat components such as flow, temperature, and salinity and native fish migration, survival, growth, and/or reproduction in the estuary?

- C. What is the frequency of occurrence and distribution of acute and chronic toxicity of ambient water to fishes and their food items in the estuary, and how is it affected by the interaction of stationary and dynamic habitat components?
- D. What are the distribution, transport, fate, concentration, and effects of contaminants including pesticides, ammonia, and metals that may have lethal or sublethal effects on fishes and their food items in the estuarine low-salinity zone, and how are these affected by the interaction of stationary and dynamic habitat components?
- E. How do interacting dynamic and stationary habitat components affect seasonal nutrient patterns in the estuary?
- F. How do interacting dynamic and stationary habitat components affect survival of outmigrating salmonids in the north and south Delta?
- G. What, if any, is the relationship between habitat quantity and quality and the continued low abundance of threadfin shad in the south and central Delta?

Topic 3: Food web effects on fish populations (bottom-up effects).

Background:

This research topic is intended to provide new insights into the effects of interacting dynamic and stationary (geographically fixed) habitat components on food web dynamics affecting native and introduced fishes in different regions of the estuary.

Specific questions to address:

- A. To what extent are native fishes limited by food supply, and how does this vary with season and/or hydrology?
- B. Do shoals offer better food resources to young striped bass than deep channels? Could this explain the apparent distributional shift of young striped bass from channel to shoal habitat?
- C. How do interacting dynamic and stationary habitat components affect seasonal zooplankton abundance and distribution and their nutritional value for fishes in the estuary? What does this mean for spatial and temporal variation in access to food for native fishes?
- D. How do interacting dynamic and stationary habitat components affect the seasonal distribution and abundance of bivalves in the estuary? How does this affect clam grazing rates?
- E. How do interacting dynamic and stationary habitat components affect the seasonal distribution and abundance of amphipods in the estuary? How does this affect the food supply for native fishes?
- F. How do interacting dynamic and stationary habitat components affect the occurrence, distribution, and intensity of harmful algal blooms and their effects on fishes?

Topic 4: Effects of piscivores or water diversions on fish populations (top-down effects).

Background:

This research topic is intended to provide insights into the effects of interacting dynamic and stationary (geographically fixed) habitat components on predation and water diversion effects on populations of fish species of interest (see Topic 1) in different regions of the estuary.

Specific questions to address:

- A. How do interacting dynamic and stationary habitat components affect predation rates on delta smelt, longfin smelt, and/or native salmonids?
- B. How do interacting dynamic and stationary habitat components affect impacts of existing water diversions on delta smelt, longfin smelt, and/or native salmonids? How would this change with new diversion points on the Sacramento River, as proposed by the BDCP?

Appendix 2: Timeline of 2012 IEP Study Solicitation and Review Milestones

Date	Who	Milestone
Mar 13-16	MAST	Off-site 1: Develop Draft Study Concept Solicitation (SCS) Document and Process
Apr 5	Coordinators	Approve Open Solicitation Approach and Process
April 18-20	Kelly & Anke	Public Update about SCS at IEP Workshop
May 2	Stakeholder Group	Input on 2013 Program and SCS Topics
May 5	MT	Review Draft Solicitation Document
May 15-16	MAST	Off-site 2: Refine Draft Solicitation Document
Jun 1	Coordinators	Approve Final SCS Document
Jun 5	Kelly & Anke	Public Release of Final SCS and draft Review Guidelines – distributed by email and posted on IEP website
Jul 1	Study Proponents	Study Concept Submission Deadline - Received 93
Jul 2-11	MT & MAST	Develop and Implement Study Concept Review Process
July 12	MT	Discuss, Evaluate and Select Study Concepts
Aug 2	Coordinators	Approval to Invite Full Proposals
Aug 3	Kelly & Anke	Study Proponent Notification about Study Concept Selection Decisions, Invite 39 Full Proposals
Aug 3-24	MAST	Develop Full Proposal Review Process
Aug 24	Study Proponents	Full Proposals Submission Deadline - received 39
Aug 27 - Sep 11	Proposal Review Team	Review Full Proposals
Sep 13-14	Proposal Review Team	Discuss, Evaluate and Rank Full Proposals for Funding
Oct 11	MT & MAST	Discuss and Finalize Recommended Draft Proposal Selection
Oct 12	Coordinators	Discuss and Approve Recommended Proposal Selection
Oct 19 <i>POSTPONED</i>	Stakeholder Group	Update on Study Solicitation Process, Draft 2013 Work Plan <i>(Had to be postponed due to scheduling conflict with Delta ISB meeting)</i>
Oct 30	Directors	Discuss and Approve 2013 IEP Work Plan, Including New Studies from Proposals
Oct 31	Kelly & Anke	Study Proponent Notification about Proposal Selection Decisions and Contracting Process